

ON A PYCNOGONID OF THE GENUS *HALOSOMA*,
From New South Wales,
by

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(Pl. I., figs. 1-6.)

1. INTRODUCTION.

Being engaged on a re-examination of the holotypes of Australian Pycnogonida described by Haswell in 1885 (1) I have found it necessary to supplement the material available by collecting at the localities mentioned in Haswell's paper. During one of these excursions recently to Shark Island, Port Jackson, I obtained a Pycnogonid which could without any difficulty be referred to the genus *Halosoma* defined by Cole in 1904 (2). I have, therefore, taken the opportunity of describing this new species, and of discussing the position of the genus *Halosoma*.

Shark Island is a small islet a few miles from the entrance to Port Jackson, and its little coast presents the main ecological features which have been so excellently described for Port Jackson by Hedley (3). This author points out that in the sheltered parts of Port Jackson between tide marks the rocks are plastered with a more or less thick layer of rock oysters (*O. cucullata*, Born.). This layer becomes exposed at ordinary low tides. Deeper than this, and only usually seen at the very lowest tides, is a zone occupied by mussels (*Brachyodontes hirsutus*). At that island this region of mussels is by no means continuous, but is, nevertheless, well represented. The various nooks and crannies between the mussels serve as lurking places for many unique and rare forms, and it is in this position that the single male specimen of *Halosoma* was found. It is easily overlooked on account of its extremely small size. Nevertheless there is no doubt that further detailed search would lead to the discovery of fresh specimens.

2. Genus *HALOSOMA*, Cole, 1904.

Halosoma, Cole. Harrim. Alask. Exp., Vol. X., Crust., 1904. Pl. XIV., fig. 11; pl. XXIV., figs. 6-8; pl. XXV., figs. 1-4.

The genus *Halosoma* was based by Cole in 1904 on a single female specimen of *H. viridintestinalis* from Dillon's

(1) 1885 Haswell, W. A. Proc. Linn. Soc., N.S.W., Vol. IX., p. 1021.

(2) 1904 Cole, L. J. Harriman Alaska Expedition, Vol. X., Crustacea, p. 286.

(3) 1915 Hedley, C. Presidential Add. Proc. Royal Soc. N.S.W., Vol. XLIX.

Beach, California. It is very closely related to both *Phoxichilidium* and *Anoplodactylus*, more closely to the latter than to the former. *Halosoma* differs from these genera, as Cole shows, in its greater concentration producing a stouter trunk and closely approximated lateral processes; further, in the moderate development of the neck it is intermediate between the two genera mentioned. In his definition of the genus, Cole describes the second tarsal joint (propodus) as possessing a well expanded spinous heel and "a thin chitinous knife-like ridge along the sole," a well developed claw and minute auxiliary claws.

The position of Cole's genus has been considered by Loman (4), who comes to the conclusion that *Halosoma* should be regarded as a subgenus of *Anoplodactylus*. This author gives a list of a number of Pycnogonida already described in literature which in his opinion should be included under *Halosoma*, viz.:—

Pallene lappa, Bohm, 1879.

Phoxichilidium exiguum, Dohrn, 1881.

Halosoma viridintestinalis, Cole, 1904.

Anoplodactylus anarthrus, Loman, 1908.

Without modifying in any way Cole's original definition of the genus, Loman shows that all the above enumerated species agree in the following points:—

- (a) Arrangement of the special spines of the legs (a single spine at the distal end of the femur and of the 1st tibia, and one placed some little distance from the distal end of the 2nd tibia).
- (b) Structure of the tarsus and propodus and their relationship to one another and to the large claw which is able to close up against the propodus like the blade of a penknife.

I am inclined, after consideration, to follow Cole in making *Halosoma* a separate genus.

The points in which *Halosoma* differs from *Anoplodactylus*—the particularly small size, the crowded nature of the crurigers (5), the tendency of the trunk segments towards coalescence, the feeble development of the neck, the particular arrangement of the spines on the legs, and the structure of the tarsus and propodus (all of which points are mentioned by Loman)—are sufficient, in my opinion, to characterise *Halosoma* as a distinct genus.

(4) 1912 Loman. Bull. de l'Inst. Oceanog. No. 238, p. 6.

(5) Such expressions as "lateral processes," "lateral prolongations," etc., are to be regarded as descriptions rather than scientific terms, and I therefore suggest the use of the term "cruriger" to denote in a Pycnogonid the hollow process of the body wall to which the ambulatory leg is attached.

Of the examples mentioned by Loman, as coming under this genus, it should be noted that all except the genotype *H. viridintestinalis* agree in lacking auxiliary claws. It may later be necessary to amend the generic definition to include these species, but they should be first examined to verify their descriptions with regard to this particular character. The presence of auxiliary claws when very small was often overlooked by earlier writers.

The following emended definition of *Halosoma* is based on the characters exhibited by *H. haswelli* and *H. viridintestinalis*.

HALOSOMA, Cole (1904), emend.

Trunk rather stout, crurigers broad, more or less closely crowded, neck little developed, proboscis cylindrical or nearly so, large, issuing ventrally from the 1st segment. Chelifori well developed but slender, chelate. Palps absent. Ovigens, in female absent, in male 6 jointed, ultimate joint devoid of terminal claw or specially developed spines, much smaller than penultimate. Legs rather stout, propodus with expanded heel with a few large spines, sole with well developed spines. Claw well developed, auxiliary claws minute but distinct.

Genotype:—*Halosoma viridintestinalis*, Cole (1904).

3. *HALOSOMA HASWELLI*, sp. nov.

(Pl. I., figs 1-6.)

Description.—*Trunk* fairly broad, all segments united, sutural lines not distinct dorsally, but more distinct ventrally, first segment almost twice as long as second, crurigers in contact proximally, but diverging somewhat distally, crurigers about as long as broad; neck very short.

Ocular tubercle of medium length, rounded, shorter than caudal segment, placed mesially almost at anterior margin of first segment, apex pointing anteriorly; eyes large.

Caudal segment of medium length, longer than ocular tubercle, apex rounded, almost erect.

Proboscis large, almost cylindrical, arising from ventral side of first segment, extending forward and slightly downward, increasing slightly in diameter from base to apex; anterior end truncated, length about half that of trunk, slight circular constriction present near anterior end of proboscis.

Chelifori well developed, scape smooth, one jointed, projecting slightly beyond the end of proboscis, clavate;

chela well developed, suspended vertically in front of proboscis, palm swollen with immovable finger only slightly curved, movable finger external and much curved, the two fingers when opposed enclosing a considerable space and having ends of fingers slightly crossed. Each finger possesses on its inner edge a few minute but distinct teeth.

Palps wanting.

Ovigers 6 jointed, 1st joint short and square in surface view, being about as long as broad, 2nd and 4th joints longer and subequal, 2nd joint much wider than the 4th, which is much curved, 3rd joint is much the longest, being about twice as long as the 2nd; at about one-third the distance from its proximal end is a slight constriction indicating possibly the fusion of two joints; 5th joint is shorter than the 4th, the 6th is very small, much smaller than the 5th, with rounded apex; terminal claw absent, no compound spines are present, but a few simple ones occur on the last few joints. Egg masses simple rounded, one to each oviger.

Legs rather stout; 1st, 2nd, and 3rd coxæ small, the 2nd being the largest, proportion of lengths being approximately 5: 8: 6; femur a little shorter than coxal region, somewhat expanded at distal end with well marked spine at dorsal distal angle. 1st tibia about same length as femur, bearing a similar spine in a similar position; 2nd tibia slightly shorter than 1st tibia, bearing a dorsal spine about one-third the distance from its distal end; tarsus very small, squarish, but with a distally hollow surface for articulation with the propodus, tarsus provided ventrally with strong hairs, dorsally with a minute but distinct spine; propodus stout and curved, longer than 2nd tibia, possessing a well-marked heel armed with two strong and several smaller spines, sole provided with a number of spines with tips strongly bent outwards. The chitinous knife edge, mentioned by Cole, is not observable in the species. Claw large and strong, about two-thirds the length of the propodus, capable of closing against propodus like the blade of a penknife; auxiliary claws small but distinct.

Genital apertures on the second coxæ of all the legs.

Measurements:—

Trunk	1.3 mm.
Third leg—1st coxa	.18 "
" " 2nd "	.32 "
" " 3rd "	.24 "
" " Femur	.64 "

Third leg—1st Tibia	.62 mm.
„ „ 2nd Tibia	.48 „
„ „ Tarsus and Propodus	.6 „
„ „ Claw	.36 „

Affinities. This species differs from *H. viridintestinalis* in many points, but particularly in the proportions of the trunk segments, in the possession of a dorsal spine on the tarsal joint, and in the presence of teeth on the inner edge of each of the chela fingers.

I have taken the opportunity of naming the species after my old friend and tutor, Professor Haswell, to whom our present knowledge of Australian Pycnogonida is almost entirely due.

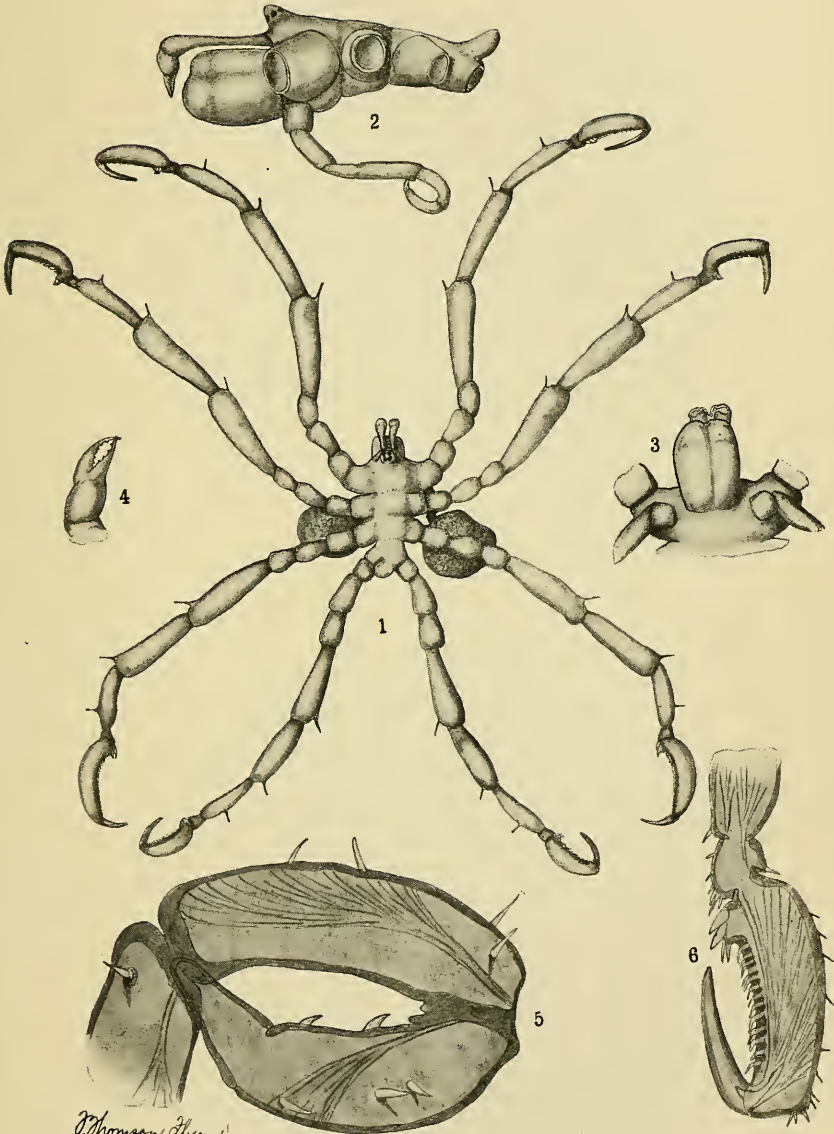
Occurrence—Shark Island, Port Jackson, found at low tide amongst (6) mussels (*Brachyodontes hirsutus*).

Holotype, 1 ♂, Australian Museum Collection, No. 4,156-62.

Halosoma haswelli, sp. nov. (Holotype 1.3 mm. long, from Shark Island, Port Jackson).

1. Entire animal (♂) dorsal view.
2. Profile view, legs removed.
3. Anterior end, ventral view.
4. Chela, anterior view.
5. Terminal joints of oviger.
6. Tarsus and propodus.

(6) It is of interest to note that *H. viridintestinalis* has been recently found also among mussels at Laguna Beach, California (1915 Hilton Journ. Entomol. and Zool., Vol VII., p. 69 and p. 205).



Thomson Hymn!

HALOSOMA HASWELLI